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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/587,961	06/06/2000	Krit Panusopone	GIC-610	9615

7590

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EXAMINER

WILEY, SAM A

ART UNIT

PAPER NUMBER

2671

DATE MAILED: 05/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/587,961

Applicant(s)

CRINON ET AL.

Examiner

Sam A Wiley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4. 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by *Crinon et al.* (6,205,260).

As per claims 1 and 18, *Crinon* teaches a method for generating a sprite from an initial input image (**col.4, lines 15-21**), wherein motion is estimated using data from the two previous frames (**col. 5, 5-10**).

Claim Rejections - 35 USC § 103

Claims 3,5-11,15-17 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Crinon et al.* (6,205,260).

As per claim 5, in further discussion of claim 1, *Crinon* does not teach that the preceding images are associated with a different sprite than the initial image, because it is known in the art that each image generally composes a single sprite, such as a

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background or foreground, that can be later combined to form a combined image which in turn is associated with a sprite composed of all the previous images.

As per claim 3, *Crinon* teaches a method for generating a sprite from an initial input image (**col.4, lines 15-21**), wherein motion is estimated using data from the two previous frames (**col. 5, lines 18-51**).

Crinon does not teach a non-linear function for determining motion estimation. However, it would have been obvious to one of ordinary skill in the art, because non-linear functions such as spline interpolation are well-known in the art for providing accurate and efficient motion estimations.

As per claim 6 and 19, *Crinon* teaches a method for generating a sprite from a plurality of input images (**col. 4, lines 15-21**), including the step of selecting an optimal viewpoint for optimizing certain characteristics (**col. 10, 50-67**).

Crinon does not specifically teach that these characteristics should include the characteristic of being successive images. However, it would have been obvious to one of ordinary skill in the art at the time of the invention, because *Crinon* does note several uses for the invention, such as a scene of moving car, an image of large building, or a videoconference system, where it would be obviously necessary to show a sprite that consists of several connected images.

As per claim 7, in further discussion of claim 6, *Crinon* teaches the use of static background (**col. 9, lines 20-27**).

As per claim 8, in further discussion of claim 6, *Crinon* teaches the detection and use of a zoom factor (**col. 11, lines 10-22**).

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As per claim 9, in further discussion of claim 6, *Crinon* teaches motion is estimated using data from the two previous frames (**col. 5, 5-10**). *Crinon* further teaches an analysis block (**fig. 7, 196**), that matches images in a panning-type sequence, such as a race car moving from right to left.

As per claim 10, in further discussion of claim 6, *Crinon* teaches motion is estimated using data from the two previous frames (**col. 5, 5-10**).

Crinon does not teach turning off block matching when zooming is detected. However, it would have been obvious to one of ordinary skill in the art, because block matching is generally used when a continuous sequence of images is involved, which is clearly not the case while zooming.

As per claim 11, *Crinon* teaches searching and detecting a particular scene in a database (**col. 9, 41-55**).

As per claim 15 and 21, *Crinon* teaches a method for generating a sprite from an initial input image (**col.4, lines 15-21**), wherein motion is estimated using data from the two previous frames (**col. 5, 5-10**). *Crinon* further teaches constructing multiple sprites and encoding their data separately (**col. 2, 33-45**).

Crinon does not teach at least one decoder. However, it would have been obvious to one of ordinary skill, because the invention of *Crinon* is essentially an encoder, and would be rendered useless without a corresponding decoder to transmit to.

As per claim 16, *Crinon* does not teach a presentation engine that combines the two sprites. However, it would have been obvious to one of ordinary skill, because the

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decoded image would necessarily have to recombine the two segmented sprites, or the image would be incomplete.

As per claim 17 and 22, *Crinon* does not teach at least one decoder. However, it would have been obvious to one of ordinary skill, because the invention of *Crinon* is essentially an encoder, and would be rendered useless without a corresponding decoder to transmit to.

Claims 2,4, 12-14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Crinon et al* (6,205,260), and further in view of *Bergen et al.* ("A Three-Frame Algorithm for Estimating Two-Component Image Motion") .

As per claim 2, in further discussion of claim 1, *Crinon* does not specifically teach a linear function for determining motion compensation based on two input images.

Bergen teaches a linear function for determining motion compensation using two input images (**pg. 888, sec. III, par. B**).

As per claim 4 in further discussion of claim 1, *Bergen* teaches an estimation formula substantially identical to the one disclosed in line 3 of claim 4 (**page.890-891, sec. V**).

Crinon does not teach that initial estimate S_n is provided according to $S_n = S_{n-1} + (S_{n-1} - S_{n-2})$, where S_{n-1} is the motion parameter data of an input image that precedes the initial input image, and S_{n-2} is the motion parameter data of the next preceding input image.

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It would have been obvious to one of ordinary skill in the art to combine the invention of *Crinon* with the formula disclosed in *Bergen*, because as noted in *Bergen*, such an approach obviates the need for segmentation and the need to estimate two motion components simultaneously.

As per claims 12 and 20, *Crinon* teaches a method for generating a sprite from an initial input image (**col.4, lines 15-21**), wherein motion is estimated using data from the two previous frames (**col. 5, 5-10**).

Bergen teaches using an error to refine a first estimate into a second estimate (**page 888-889, sec. IV, para. A**).

Crinon does not teach providing a second estimate derived from the error of the first estimate. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of *Crinon* with the algorithm of *Bergen*, because a closer estimate provides a more accurate image and is thus more pleasing to the viewer.

As per claim 13, in further discussion of claim 12, *Bergen* does not teach that the pixels which exceed the first error threshold are "outliers", nor that the second error is obtained for the pixels designated as "outliers".

However, it would have been obvious to one of ordinary skill in the art, because "outliers" are simply pixels at the edge of the image, and thus the most likely to be blurred or incorrect. Thus, it is obvious to concentrate the effort on those pixels most likely to be in error.

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As per claim 14, in further discussion of claim 12, the Levenberg-Marquardt minimization technique is well-known in the art for effectively determining errors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Wiley** whose telephone number is **(703) 605 - 4248**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



**MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
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